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10/806,526	03/23/2004	Ilker Cengiz	MS 307061.01	2509

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EXAMINER
DAYE, CHELCIE L

ART UNIT	PAPER NUMBER
2161	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/806,526	CENGIZ ET AL.	
	Examiner	Art Unit	
	CHELCIE DAYE	2161	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 March 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3,4,6-14,16,17,21-25,27-35 and 37-39* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3,4,6-14,16,17,21-25,27-35 and 37-39* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This action is issued in response to applicant's amendment filed March 23, 2009.

2. Claims 1, 3, 4, 6-14, 16, 17, 21-25, 27-35, and 37-39 are presented. No claim added and claims 2, 5, 15, 18-20, 26, and 36 remain cancelled.

3. Claims 1, 3, 4, 6-14, 16, 17, 21-25, 27-35, and 37-39, are pending.

4. Applicant's arguments filed March 23, 2009, have been fully considered but they are not persuasive.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1,3-4,6-12,22-25,27-35, and 37-39, are rejected under 35 U.S.C. 103(a) as being unpatentable over Wotring (US Patent No. 6,853,997) filed June 28, 2001, in view of Wang (US Patent No. 6,907,433) filed August 1, 2001, further in view of Ludwig (US Patent No. 6,006,230) filed January 29, 1997, further in view of Chua (US Patent Application No. 2005/0210124) filed March 19, 2004, and further in view of Koller (US Patent Application No. 2002/0103793) filed August 2, 2001.

Regarding Claims 1, 22, and 27, Wotring discloses a computer executable data structure comprising:

a computer processor coupled to a memory for executing the following (column 3, lines 40-49, Wotring),

a first data structure that describes one or more classes which define programmatic objects (Fig.1, item 100; column 6, lines 34-40, Wotring)[1];

a second data structure that describes members of each class and comprises compound members that allow mapping of complex members as inline members of a given class, which allows inline mapping of arrays, structs and entity key members (Figs.1,2,9A-B; column 6, lines 37-52; column 7, lines 1-15 and 48-50; column 13, lines 39-46, Wotring)[2]; and

a third data structure that describes relationships between objects (Fig.9; column 46-56, Wotring).

However, Wotring is silent with respect to persisting object data to a database. On the other hand, Wang discloses persisting object data to a database (column 5, lines 54-61, Wang). Wotring and Wang are analogous art because they are from the same field of endeavor of mapping objects and relational information. It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate Wang's teachings into the Wotring system. A skilled artisan would have been motivated to combine as suggested by Wang at column 1, lines 59-62, in order to allow object to relational mapping

[1] Examiner Notes: 'Person' corresponds to a class.

without providing back-reference or direct attributes in the target objects. As a result, alleviating the intrusiveness of the object design. Therefore, the combination of Wotring in view of Wang, disclose an object schema that describes data classes as well as relations between the data classes as specified in an object oriented model, is generated and utilized together with a relational schema and a mapping schema to map the programmatic objects to tables in the database (column 1, lines 19-22; columns 4-5, lines 66-67 and 1-16, respectively, Wang); and

wherein the mapping schema provides the mapping between the object schema and the relational schema (columns 4-5, lines 66-67 and 1-4, respectively, Wang), and the relational schema utilizes metadata associated with the database to generate an implementation neutral format or an implementation specific format that represents the database structure (column 5, lines 17-29, Wang).

However, the combination of Wotring and Wang are not as detailed with respect to an alias attribute that is employed by a query language to identify a private member used to generate a query. On the other hand, Ludwig discloses an alias attribute that is employed by a query language to identify a private member used to generate a query (column 7, lines 37-47; columns 9-10, lines 56-67 and 1-412, respectively; column 14, lines 47-64, Ludwig). It would have been obvious to one of ordinary skill in the art at the time of the invention to

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[2] Examiner Notes: 'Attributes' correspond to members.

incorporate Ludwig's teachings into the Wotring and Wang system. A skilled artisan would have been motivated to combine in order to allow the system to be more diverse and secure. However, Wotring, Wang, and Ludwig are not as detailed with respect to the alias pointing to a public member that is to be utilized in place of the associated private member. On the other hand, Chua discloses the alias pointing to a public member that is to be utilized in place of the associated private member ([0009], Chua). It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate Chua's teachings into the Wotring, Wang, and Ludwig system. A skilled artisan would have been motivated to combine in order to show that an alternate attribute can be used within the system for security purposes. However, Wotring, Wang, Ludwig, and Chua are not as detailed with respect to a hidden attribute that defines if there is a hidden member in a corresponding class and manages the hidden member in a transparent fashion. On the other hand, Koller discloses a hidden attribute that defines if there is a hidden member in a corresponding class and manages the hidden member in a transparent fashion ([0091-0092] and [0223], Koller). It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate Koller's teachings into the Wotring, Wang, Ludwig, and Chua system. A skilled artisan would have been motivated to combine in order to incorporate link uncertainty into the framework and provide a technique that can automatically construct and make use of a database query optimization.

Regarding Claims 3 and 25, the combination of Wotring in view of Wang, further in view of Ludwig, further in view of Chua, and further in view of Koller, disclose the data structure wherein a field includes a key attribute that defines whether the field is an object key (column 13, lines 53-58, Wotring).

Regarding Claim 4, the combination of Wotring in view of Wang, further in view of Ludwig, further in view of Chua, and further in view of Koller, disclose the data structure wherein the properties include a path attribute that delimits the context of a class (columns 6-7, lines 64-67 and 1-17, respectively, and column 9, lines 50-53, Wotring).

Regarding Claims 6 and 28, the combination of Wotring in view of Wang, further in view of Ludwig, further in view of Chua, and further in view of Koller, disclose the data structure wherein the members are compound members comprising members and other compound members (Fig.1; column 6, lines 45-52, Wotring).

Regarding Claims 7 and 29, the combination of Wotring in view of Wang, further in view of Ludwig, further in view of Chua, and further in view of Koller, disclose the data structure wherein the compound member is an array (Fig.2; column 7, lines 48-50, Wotring).

Regarding Claim 8, the combination of Wotring in view of Wang, further in view of Ludwig, further in view of Chua, and further in view of Koller, disclose the data structure wherein the compound member includes a type attribute that defines the type of data identified by the compound member (Fig.4B, item 409; columns 9-10, lines 54-67 and 1-4, respectively, Wotring).

Regarding Claim 9, the combination of Wotring in view of Wang, further in view of Ludwig, further in view of Chua, and further in view of Koller, disclose the data structure wherein the third structure includes a type attribute that defines relationships between objects (column 9, lines 14-22, Wotring).

Regarding Claims 10 and 30, the combination of Wotring in view of Wang, further in view of Ludwig, further in view of Chua, and further in view of Koller, disclose the data structure wherein the relationship is one of one-to-one, one-to-many, or many-to-many (columns 5-6, lines 62-67 and 1-2, respectively, Wang).

Regarding Claims 11 and 24, the combination of Wotring in view of Wang, further in view of Ludwig, further in view of Chua, and further in view of Koller, disclose the data structure wherein the database is a relational database (column 2, lines 63-66, Wotring).

Regarding Claim 12, the combination of Wotring in view of Wang, further in view of Ludwig, further in view of Chua, and further in view of Koller, disclose the data structure wherein the first, second and third data structures are XML structures (column 3, lines 34-34-39, Wotring).

Regarding Claim 23, the combination of Wotring in view of Wang, further in view of Ludwig, further in view of Chua, and further in view of Koller, disclose the method wherein the classes represent objects defined by an object-oriented language (column 5, lines 50-53, Wang).

Regarding Claim 31, the combination of Wotring in view of Wang, further in view of Ludwig, further in view of Chua, and further in view of Koller, disclose the method wherein specifying class relationships comprise specifying a parent class and a child class (column 5, lines 30-40, Wang).

Regarding Claim 32, the combination of Wotring in view of Wang, further in view of Ludwig, further in view of Chua, and further in view of Koller, disclose the method further comprising specifying child members associated with the parent and child classes (column 6, lines 45-48, Wotring).

Regarding Claim 33, the combination of Wotring in view of Wang, further in view of Ludwig, further in view of Chua, and further in view of Koller, disclose a

computer readable medium having stored thereon computer executable instructions for carrying out the method (column 9, lines 58-67, Wang).

Regarding Claim 34, the combination of Wotring in view of Wang, further in view of Ludwig, further in view of Chua, and further in view of Koller, disclose a method for generating an object schema comprising:

employing a processor coupled to a memory to execute the generation of the object schema (column 3, lines 40-49, Wotring), comprising:

receiving program code that describes one or more classes which define objects (Fig.1, item 100; column 6, lines 34-40, Wotring);

describing members of each class, wherein the members of each class comprise compound members that allow mapping of complex members as inline members of a given class, which allows inline mapping of arrays, structs and entity key members (Figs.1,2,9A-B; column 6, lines 37-52; column 7, lines 1-15 and 48-50; column 13, lines 39-46, Wotring);

receiving input from a developer (column 2, lines 54-62, Wotring);

generating an object schema to be employed to facilitate mapping object components from an object oriented program to tables in a relational database (column 5, lines 5-16, Wang);

providing a mapping schema that provides a mapping between the object schema and a relational schema (columns 4-5, lines 66-67 and 1-4, respectively, Wang), and the relational schema utilizes metadata associated with the database

to generate an implementation neutral or an implementation specific format that represents the database structure (column 5, lines 17-29, Wang);

identifying a name of a member to be used as an alias to query a private member (column 7, lines 37-47; columns 9-10, lines 56-67 and 1-12, respectively; column 14, lines 47-64, Ludwig), the alias points to a public member that is to be utilized in place of the associated private member ([0009], Chua); and

defining a hidden member in a corresponding class and managing the hidden member in a transparent fashion ([0091-0092] and [0223], Koller).

Regarding Claim 35, the combination of Wotring in view of Wang, further in view of Ludwig, further in view of Chua, and further in view of Koller, disclose the method wherein the developer provides input via a graphical user interface (column 3, lines 7-10, Wotring).

Regarding Claim 37, the combination of Wotring in view of Wang, further in view of Ludwig, further in view of Chua, and further in view of Koller, disclose the method wherein the schema is an XML schema (column 3, lines 34-39, Wotring).

Regarding Claim 38, the combination of Wotring in view of Wang, further in view of Ludwig, further in view of Chua, and further in view of Koller, disclose

the method wherein receiving input from a developer comprises identifying classes to be persisted and specifying relations amongst classes (column 5, lines 54-61, Wang).

Regarding Claim 39, the combination of Wotring in view of Wang, further in view of Ludwig, further in view of Chua, and further in view of Koller, disclose a computer readable medium having stored thereon computer executable instructions for carrying out the method (column 9, lines 58-67, Wang).

7. Claims 13-14, 16-17, and 21, are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang (US Patent No. 6,907,433) filed August 1, 2001, in view of Bigus (US Patent No. 7,136,843) filed October 23, 2002, further in view of Ludwig (US Patent No. 6,006,230) filed January 29, 1997, further in view of Chua (US Patent Application No. 20050210124) filed March 19, 2004, and further in view of Koller (US Patent Application No. 2002/0103793) filed August 2, 2001.

Regarding Claim 13, Wang discloses an object schema generation system comprising:

a computer processor coupled to a memory for executing the following components (column 9, lines 61-64, Wang);

a code reader component adapted to read or retrieve code from an object-oriented program or set of programs (column 6, lines 23-25 and 41-56, Wang),

the program describes objects via classes and class members (column 5, lines 5-16, Wang);

an object schema generation component that retrieves or is provided with code from the code reader component (column 5, lines 54-61 and column 6, lines 17-34, Wang), the object schema generation component produces an object schema in an extensible markup language (XML) which provides metadata concerning objects to facilitate persistence of object data to a data store (column 5, lines 30-40, Wang), wherein the generated object schema is utilized together with a relational schema and a mapping schema to map object data to tables in the data store (columns 4-5, lines 66-67 and 1-16, respectively, Wang);

wherein the mapping schema provides the mapping between the object schema and the relational schema (columns 4-5, lines 66-67 and 1-4, respectively, Wang), and the relational schema utilizes metadata associated with the data store to generate an implementation specific format that represents the data store structure (column 5, lines 17-29, Wang).

However, Wang is silent with respect to the utilization of a rule based artificial intelligence to provide heuristics necessary to build the schema and code provided in real time. On the other hand, Bigus discloses the utilization of a rule based artificial intelligence to provide heuristics necessary to build the schema (column 4, lines 17-28, Bigus) and code provided in real time (column 2, lines 21-29, Bigus). It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate Bigus' teachings into the Wang system.

A skilled artisan would have been motivated to combine in order to provide an object-oriented framework, which allows for increased performance as needed by more complex applications. Also, Wang is silent with respect to properties of the members of classes include an alias attribute that is employed by a query language to identify a private member used to generate a query, the alias points to a public member that is to be utilized in place of the associated private member in text of a query. On the other hand, Ludwig discloses properties of the members of classes include an alias attribute that is employed by a query language to identify a private member used to generate a query (column 7, lines 37-47; columns 9-10, lines 56-67 and 1-412, respectively; column 14, lines 47-64, Ludwig). It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate Ludwig's teachings into the Wang system. A skilled artisan would have been motivated to combine in order to allow the system to be more diverse and secure. However, Chua discloses the alias points to a public member that is to be utilized in place of the associated private member ([0009], Chua). It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate Chua's teachings into the Wotring, Wang, and Ludwig system. A skilled artisan would have been motivated to combine in order to show that an alternate attribute can be used within the system for security purposes. However, Wang, Bigus, Ludwig, and Chua are not as detailed with respect to a hidden attribute that defines if there is a hidden member in a corresponding class and manages the hidden member in a

transparent fashion. On the other hand, Koller discloses a hidden attribute that defines if there is a hidden member in a corresponding class and manages the hidden member in a transparent fashion ([0091-0092] and [0223], Koller). It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate Koller's teachings into the Wang, Bigus, Ludwig, and Chua system. A skilled artisan would have been motivated to combine in order to incorporate link uncertainty into the framework and provide a technique that can automatically construct and make use of a database query optimization.

Regarding Claim 14, the combination of Wang in view of Bigus, further in view of Ludwig, further in view of Chua, and further in view of Koller, disclose the system further comprising a data store information component adapted to provide the schema generation component with information concerning the data store (column 5, lines 17-29, Wang).

Regarding Claim 16, the combination of Wang in view of Bigus, further in view of Ludwig, further in view of Chua, and further in view of Koller, disclose the system wherein the program is specified in an object-oriented language (column 5, lines 50-53, Wang).

Regarding Claim 17, the combination of Wang in view of Bigus, further in view of Ludwig, further in view of Chua, and further in view of Koller, disclose the

system wherein the program contains a plurality of object classes and fields (column 5, lines 17-29, Wang).

Regarding Claim 21, the combination of Wang in view of Bigus, further in view of Ludwig, further in view of Chua, and further in view of Koller, disclose the system wherein the object schema generation component employs a Bayesian network to infer proper schema structures and relationships (columns 10-11, lines 61-67 and 1-4, respectively, Bigus).

Response to Arguments

Applicant argues, Wotring does not disclose utilizing metadata to generate an implementation neutral or implementation specific format.

Examiner respectfully disagrees. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). In particular, applicant argues a feature that was not directly cited by Wotring, but instead disclosed by Wang.

Applicant argues, Wang does not disclose utilizing metadata associated with a database to generate an implementation neutral or implementation specific format.

Examiner respectfully disagrees. Wang teaches a meta-data storage which defines the mapping data of how the object classes map to the tables and the relationships. Also, a descriptor is utilized with the mapping meta-data in order to describe how the object data is represented in a relational database and contains transformation routines for storing and retrieving attributes (see col.5, lines 17-29). The above description thus disclosing the utilization of metadata with a database to generate an implementation specific format. Also, applicant's specific argument is that the claimed subject matter defines the object schema in a declarative manner that is specified as information external to programming logic, however; the features of which the applicant is arguing are not recited in the claim language.

Applicant argues, Ludwig does not disclose employing an alias by a query language to identify a private member.

Examiner respectfully disagrees. Ludwig discusses query language and SQL commands (see col.7, lines 37-47), as well as alias' that differentiate real version of the object from remote version of the object (see cols. 9-10, lines 56-67 and 1-45). Also, Ludwig discloses wherein the remote object ends up in the private collection list of objects (see col.17, lines 32-35). The above description thus teaching the above argued feature.

Applicant argues, Wang nor Bigus disclose identifying a name of a member to be used as an alias to query a private member.

Examiner respectfully disagrees. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). In particular, applicant argues a feature that was not directly cited by Wang nor Bigus.

Applicant argues, Wotring nor Wang disclose identifying a name of a member to be used as an alias to query a private member.

Examiner respectfully disagrees. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., "identifying a name") are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed.Cir.1993). Even further, assuming that the applicant is actually arguing the newly amended feature of "include an alias attribute that is employed by a query language to identify a private member used to generate a query", is attacks against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed.Cir.1986). In particular, Wotring nor Wang were relied upon for the disclosure of the alias feature.

Applicant's arguments with respect to the newly added features of the claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action.

Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Points of Contact

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHELCIE DAYE whose telephone number is (571) 272-3891. The examiner can normally be reached on M-F, 7:00 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Apu Mofiz can be reached on 571-272-4080. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Chelcie Daye
Patent Examiner
Technology Center 2100
June 30, 2009

/Etienne P LeRoux/
Primary Examiner, Art Unit 2161